

Case 3 – Cheating
Statistics 8801
Spring Semester 2008
Handed out February 8, to be discussed February 15

Charges were brought against a student in a professional school for cheating. The charges alleged that the candidate X exhibited irregular behavior indicative of copying answers from another examinee during a standardized examination. According to the exam proctor, X had engaged in unusual and suspicious behavior during the examination. On multiple occasions during the exam, X would lift his/her examination booklet in front of his/her face and was observed to be looking at another student's test paper.

The exam is multiple choice. Given that you know how X answered all questions, and you know how all other candidates, both at this school and elsewhere, answered questions, and you know the correct answers, what analysis would you do to provide statistical evidence for or against X having cheated on these exams? The marketer of the test also provides methodology for providing evidence about cheating.

Your Assignment As usual, the group leaders are to give 12 minute presentation. All presentations should be done assuming that the audience is an *intelligent, though not necessarily mathematically sophisticated, judge in a legal proceeding*. The leader of the first group is to present as if representing the school. The leader of the second group is to present as if representing the student. The leader of the third group is to present as if as expert employed by the court.

1 Cover letter from testing agency

Dear Dr. Y:

In response to your written request, an "agreement analysis" has been performed as described in the enclosed document on one pair of examinees who took the exam at your school on the date in question. Agreement analysis is a statistical tool that can provide helpful supporting information for the investigation of observed behaviors that may compromise the validity of examinees' test scores. The agreement analysis compares the degree of agreement that is observed between the wrong answers of two examinees with the degree of agreement that would be expected to occur between two randomly chosen examinees taking the same test independently. Agreement analysis uses only those test items that both examinees in the pair answered incorrectly.

Caution is advised when interpreting the results of these analyses, since there is always some probability that the observed agreement did occur by chance. You should not use the results of the statistical analyses alone for making a decision about suspected irregularity, but should also consider as a major factor in any decision the observations made by the proctor(s) and/or any other relevant, non-statistical information.

2 Additional Supporting Material

These will be handed out in class, and are not available on the web.

3 Group Assignments

See the back of this page.

	Name	email
1	Wei,Xiaoqiao	xiaoqiao@stat.umn.edu
2	Lendway,Lisa	llendway@stat.umn.edu
3	Trudell,Timothy	tnt@stat.umn.edu
4	Ma,Li	maxxx131@umn.edu
5	Prew,Paul	paul.prew@ecolab.com
6	Freer,Laura	freela01@stat.umn.edu
7	Liu,Yan	liuyan@stat.umn.edu

	Name	email
1	Mukherjee,Partha	psm@stat.umn.edu
2	Okabayashi,Sai	sai@stat.umn.edu
3	Rossignol,Jacques-Philippe	jacques@stat.umn.edu
4	Liu,Xiao	liuxx369@umn.edu
5	Yu,Xinhua	xinhuayu@umn.edu
6	Beckman,Matthew	Beckman@stat.umn.edu

	Name	email
1	Zachman,Matthew	zach0076@umn.edu
2	Johnson,Leif	leif@stat.umn.edu
3	Su,Zhihua	suzhihua@stat.umn.edu
4	Jun,Daeun	dasilver@stat.umn.edu
5	Guan,Zi Yu	zy@stat.umn.edu
6	Holland,Mark	holland@stat.umn.edu
